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ETHNICITY, GEOGRAPHY, AND OCCUPATIONAL ACHIEVEMENT OF HISPANIC MEN IN THE UNITED STATES*

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Graduate Management Admission Council

Using data from the Survey of Income and Education of the U.S. Census Bureau, I examine occupational inequality between Hispanic and non-Hispanic white men in the U.S. Following previous research, I hypothesize that Hispanic occupational disadvantage is affected by the geographic distribution of Hispanics, and the subgroup structure of the Hispanic population. However, results indicate that neither variable has a strong effect. Instead, the results support a pattern of "conditional occupational assimilation": If Hispanic men speak English at least "very well" and have completed at least 12 years of school, then their occupational achievement is close to that of white non-Hispanic men with similar English fluency and schooling. Otherwise, the occupations of Hispanics are inferior to those of white non-Hispanic men with similar linguistic and educational characteristics. I also reconsider the concept of ethnicity effects on occupational inequality.

Sociological interest in U.S. Hispanics has burgeoned, and much has been written about this rapidly-growing ethnic group (Massey 1981; Borjas and Tienda 1985; Portes and Truelove 1987). Although Hispanics are disproportionately concentrated in low socioeconomic status occupations, occupational differences between Hispanic and non-Hispanic men have not been studied in detail (Tienda 1983a,b; Neidert and Farley 1985).[1] Thus, my first concern in this paper is to examine those differences and investigate the connection between them and Hispanic–non-Hispanic differences in schooling, English language fluency and other work-related characteristics of individuals.

My second concern is the hypothesis that the peculiar geographic distribution of American Hispanics substantially affects Hispanic–non-Hispanic occupational inequality. Prior research claims considerable effect of Hispanics' geographic location on their employment outcomes (Sanders and Nee 1987), and a long line of research relates occupational inequality to the distribution of minorities across geographic areas (Fossett and Swicegood 1982; Stolzenberg and D'Amico 1977). But the validity of these arguments has been hotly debated, and it remains unclear whether Hispanic–non-Hispanic occupational differences are generally and substantially affected by the unique geographic distribution of Hispanics.

My final concern is the occupational impact of the ethnic substructure of American Hispanics. Recent studies (Bean and Tienda 1987) stress the significance of differences among Hispanic ancestry groups, suggesting that if ethnicity per se affects employment of Hispanics, those effects should also be evident for Hispanic subgroups.

BACKGROUND AND HYPOTHESES

This section considers the likely effects of several factors on occupational differences between Hispanics and non-Hispanics: geographic location, membership in various Hispanic ethnic subgroups, English language fluency, foreign birth, years of schooling, and length of labor market experience.

Geographic differences between American Hispanics and non-Hispanics are stark: in 1980, 31 percent of the U.S. Hispanic population lived in California, compared to nine percent of the non-Hispanic population. About half of all

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[1] Occupational achievement of women was also considered in this research but is reported in a separate paper due to space limitations.

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Hispanics were concentrated in California and Texas, compared to 14 percent of the non-Hispanic population. Finally, four-fifths of all Hispanics resided in seven states compared to 35 percent of non-Hispanics (U.S. Bureau of the Census 1982, Table 1).

Past research offers three reasons to hypothesize that these geographic differences affect occupational differences. First, different places have different occupational distributions, leading to different patterns of occupational opportunities for their residents (Mueller 1975; Beck, Horan, and Tolbert 1980; Hodson and Kaufman 1982; Kalleberg and Berg 1987). Second, places differ in the percent of their population that is Hispanic. This difference may affect prejudice and the severity of occupational discrimination (Frisbie and Neidert 1977; Stolzenberg and D'Amico 1977; Fossett and Swicegood 1982). Third, in some places the Hispanic population is large enough to form a separate Hispanic labor market and other institutions that may reduce Hispanic economic disadvantage (Portes and Bach 1980; but see Sanders and Nee 1987; Hirschman and Wong 1984).

The ethnic substructure of the American Hispanic population may also influence the occupational achievement of American Hispanics. The U.S. Census defines five Hispanic ethnic subgroups as immigrants and descendants of immigrants from (1) Mexico, (2) Cuba, (3) Puerto Rico, (4) Central and South America, and (5) all other places. These groups differ in their migration histories, percentages born in the U.S., percentages who usually speak Spanish, average years of schooling, labor force participation rates, median earnings and labor market experiences in the U.S. (Newman 1978; Chiswick 1979; Jaffe, Cullen, and Boswell 1980; Borjas and Tienda 1985). After adjustment for schooling and labor market experience levels, these subgroups still differ in average earnings (see e.g., Tienda 1983b; Reimers 1985; Abowd and Killingsworth 1985), suggesting direct ethnic subgroup effects on employment outcomes. Such effects might be the product of values, attitudes, social networks, or other phenomena associated with an ethnic group. Alternatively, members of one group might be subject to more employment discrimination than members of another group. Certainly no necessary connection exists between ethnic subgroups and their differences in occupational achievement (Tienda 1983a, pp. 270-1, and Bean and Tienda 1987, Ch. 1). Analyses that have found subgroup effects on earnings have generally lacked stringent controls for geographic location. Because Hispanic subgroups are concentrated in different parts of the country (National Commission on Employment Policy 1982; Russell 1983), the correlation between geographic location and Hispanic subgroup is very high (Stolzenberg 1982, Table 1), making it difficult to distinguish ethnicity effects from geographic effects.[2]

Table 1. Independent Variables and Subsamples for Regression Specifications in Two-Way Covariance Analysis Design in which Race-Ethnicity and Geographic Location are Covariates

Sample	White Hispanics Only: Models Without Hispanic Ethnicity Subgroup Dummy Variables (1)	White Hispanics Only: Models With Hispanic Ethnicity Subgroup Dummy Variables (2)	Non-Hispanic Whites (3)
State-Specific Analyses			
1. New York 2. New Jersey 3. Florida 4. Texas 5. Colorado 6. New Mexico 7. Arizona 8. Nevada 9. California	b	b,H	b
Analysis of Nine State Subsamples Pooled			
10. Analyses including eight state dummy variables	b,S	b,H,S	b,S
11. Analyses without state dummy variables	b	b,H	b

Notes: b indicates basic model variables: ED, ED^2, EX, EX^2, SPKENG, and FOBOR; H indicates four dummy variables for Hispanic ethnic subgroups: Mexican, Puerto Rican, Cuban, Central and South American; S indicates eight dummy variables for state of residence: NY, NJ, TX, CO, NM, AZ, NV, and CA.

[2] In 1980, 80.0 percent of Hispanics in California were Mexican-origin, compared to 2.3 percent in New York; Puerto Ricans were 59.4 percent of New York Hispanics and 2.0 percent of California Hispanics; Cubans were 54.8 percent of Florida Hispanics and 1.3 percent of California Hispanics (computed

Much research points to unequal English language fluency as a source of employment inequality between American Hispanics and non-Hispanics (Carliner 1981; McLaughlin 1983; McManus, Gould, and Welch 1983; Reimers 1985; Tainer 1988). Workers who cannot speak English, on average, are less valuable to employers than those who speak English fluently.

Foreign birth apparently delays socialization into American labor market practices, attracts xenophobic discrimination, restricts informal job information networks, and creates mismatches between previously learned job skills and job skills called for by U.S. employers (Chiswick 1978, 1979). Thus, it is important to control for effects of foreign birth on occupational attainment (Neidert and Farley 1985, and Borjas and Tienda 1987). The prevalence of foreign birth varies widely among Hispanic subgroups. In 1976, 69 percent of white Mexican-ancestry men aged 18 to 64 years were born in the U.S. compared to 27 percent of Puerto Ricans, three percent of Cubans and six percent of men of Central or South American ancestry (Borjas and Tienda 1985, p. 3).

On average, American Hispanics have substantially less schooling than non-Hispanic Americans, and substantial schooling differences among Hispanic subgroups (Borjas and Tienda 1985) could influence occupational inequality. Thus, two key questions are: Are occupational effects of Hispanic subgroup membership and geographic location merely consequences of ethnic and geographic variation in workers' schooling? Does schooling affect the occupational achievement of Hispanics more or less than the occupational achievement of non-Hispanics who live in the same geographic areas?

This paper tests two hypotheses: (1) Hispanic–non-Hispanic occupational inequality is substantially explained or affected by Hispanic–non-Hispanic differences in place of residence, Hispanic subgroup membership, and/or individual characteristics such as schooling and English language fluency. (2) Occupational differences among different Hispanic subgroups are substantially explained or affected by differences in place of residence, ethnic subgroup membership and/or individual characteristics such as schooling and English language fluency. Testing these hypotheses is complicated by the strong association between Hispanic subgroup membership, place of residence, and individual worker characteristics.

DATA

Data are drawn from the Survey of Income and Education (SIE), which was fielded in 1976 by the U.S. Bureau of the Census (1978), with a national response rate of 95.4 percent for approximately 160,000 sampled households. The SIE provides detailed information on English language ability, Hispanic ethnicity, Hispanic subgroup membership, country of birth, years of schooling, and other social, economic, and demographic factors. Large numbers of Hispanic respondents were obtained by oversampling low-income persons. Separate samples were drawn in each state, thereby enhancing coverage of states with large Hispanic concentrations. The present analysis is restricted to those nine states in which the SIE collected data on at least 200 Hispanics in the experienced civilian labor force (ECLF): New York, New Jersey, Florida, Texas, Colorado, New Mexico, Arizona, Nevada, and California. In 1980, these states included 81 percent of the Hispanic population of the U.S. (U.S. Bureau of the Census 1982). The final sample contains 2,272 Hispanic and 17,087 non-Hispanic white men. Weighting of sample cases to reflect sampling probabilities prevents states with disproportionately large samples of Hispanics (e.g., Nevada) from having a disproportionate influence on outcomes of analyses in which data from all nine states are pooled. The absence of adequate-sized samples from some states with substantial Hispanic populations (e.g., Illinois) restricts generalizability somewhat. However, these nine states included 88 percent of all U.S. Cubans, 85 percent of U.S. Mexicans, and 72 percent of mainland Puerto Ricans (U.S. Bureau of the Census 1982).

Specific variables used in the analysis are as follows:

Education (ED) is the number of years of school completed by the respondent. To allow non-linear effects, ED^2 is also included.

Potential years of labor market experience (EX) is years of age minus years of school minus six. To allow non-linear effects, EX^2 is also included.

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from U.S. Bureau of the Census, 1982, Table 3). Tienda (1983b, p. 66) argues that the earnings of Puerto Rican mainlanders are adversely affected by the characteristics of the geographic areas in which they are concentrated in the U.S.

Foreign birth (FORBOR) is a dummy variable set equal to one if the individual was born outside the U.S., and zero otherwise.

English language fluency (SPKENG) is measured on the following scale: (1) speaks no English; (2) speaks English "not well — just a few words"; (3) speaks English "not well — more than a few words"; (4) speaks English "well"; (5) speaks English "very well"; and (6) native speaker of English who was raised in a home where English was the usual language spoken.[3]

Hispanic subgroup in the SIE is classified into five categories: Cuban, Mexican, Puerto Rican, Central or South American, and Other Spanish.

Race is classified into three categories: white, black, and other. There are too few non-white Hispanic men in the SIE to permit their separate analysis. Model selection is based in part on analyses of covariance of SIE respondents of all races, but specific findings reported in this paper are restricted to Hispanic and non-Hispanic white males.

Occupation. Three separate measures of occupation are used: (a) Duncan's socioeconomic index (SEI) is the basic dependent variable. (b) To measure differences in occupational pay rates, each respondent's occupation is indexed by the natural logarithm of mean earnings reported by men in the occupation who worked 50 to 52 weeks per year in the 1970 Census. (c) To measure occupational differences in opportunities for steady employment, each occupation is indexed by the proportion of male incumbents who were employed 50 to 52 weeks in the 1970 Census, the Census immediately preceding the SIE.

ANALYTIC STRATEGY

The analytic strategy used here is two-way analysis of covariance (ANCOVA) (Johnston 1972), which is applied separately for each of the three dependent variables. First, a basic model of occupational attainment is specified, following the discussion above, as shown in equation (1), where OCC is the predicted value of one of the three measures of occupation.

$$OCC = b_0 + b_1ED + b_2ED^2 + b_3EX + b_4EX^2 + b_5FORBOR + b_6SPKENG \quad (1)$$

Second, ANCOVA is used to test for and estimate group differences in basic model coefficients and intercepts. Finally, coefficient and intercept estimates are used to adjust the mean of OCC in each group for group differences in means of independent variables. If coefficients differ across groups, then adjusted means are calculated by regression standardization: standard values for basic model variables are selected and substituted into equation 1.[4]

Because present concerns focus on both geography and race-ethnicity, analyses presented

[3] A similar scale, which measures ability to understand rather than speak English was investigated. However, these scales are nearly perfect substitutes for each other, producing virtually identical results in preliminary analyses, and correlating 0.97 with each other among Hispanics in the SIE data used in this paper. Nonlinearities were investigated without success with polynomial regression. In addition, five different dichotomizations of these scales were tried, but analyses like those reported below suggested that dichotomization of the English ability variables merely reduced their explanatory power in models of occupational achievement. Finally, another variable, called USLENG, was set to one if the individual's usual language was English, and zero otherwise. All analyses reported in this paper were also performed using USLENG rather than SPKENG as the measure of English language ability. Like the dichotomized versions of SPKENG, USLENG was found to have smaller effect on occupational achievement than SPKENG, but replacing SPKENG with USLENG had only trivial effects on the relationship between other variables and occupational achievement. When both SPKENG and USLENG were included in models of occupational achievement, the effect of USLENG vanished. Finally, I also included the product of schooling and SPKENG in such models to test the hypothesis that the effect of schooling on occupation varies with a person's ability to speak English. That is, since school-learned skills generally involve cognition and communication, I hypothesized that ability to communicate in English would be necessary for full utilization of these skills on the job in a predominantly English-speaking society. However, preliminary analyses found that the product of these variables had no effect whatsoever on occupational achievement, and so that product was not used in analyses reported here.

[4] If coefficients do not differ across groups, group differences in OCC net of the effects of independent variables are equal to group differences in regression constant terms. If coefficients are found to differ across groups, then group differences in the mean of the dependent variable cannot, except under unusual circumstances (e.g. means of independent variables are identical in all groups), be decomposed into portions due to group differences in means of independent variables and portions due to differences in coefficients. This problem is circumvented by use of a standard set of values for independent variables.

below are part of a two-way analysis of covariance in which geographic location and race-ethnicity are factors, and ED, ED^2, EX, EX^2, FORBOR and SPKENG are covariates. This design is shown in Table 1. Analyses in Table 1 involve estimation of the basic model separately for Hispanics and non-Hispanics. Analyses corresponding to rows 1 through 9 involve estimation of the basic model separately for residents of each of the nine states considered here.[5] Although analyses reported here are based on a full ANCOVA design and its tests, discussion is limited to results based on only the three columns of Table 1.

Depending on assumptions and outcomes of significance tests, geographic and ethnicity effects are distinguished by: (1) estimating the model once for Hispanics and again for non-Hispanics in each state (18 different state- and race-ethnicity-specific analyses), or (2) adding ethnicity dummy variables to analyses of all workers in each state (nine different state-specific analyses), (3) some combination of dummy variables and separate analyses, or (4) adding only dummy variables for state and ethnicity.

Due to small sample sizes within states, basic model parameters cannot be estimated reliably for different Hispanic ethnicity subgroups (e.g. Cuban-Americans) in each separate state (this would involve estimates of 7 basic model parameters for each of the 45 groups defined by five ethnic subgroups in nine states). Accordingly, Hispanic ethnicity subgroup effects on occupation are estimated by including dummy variables for those subgroups in each state-specific equation. This limitation notwithstanding, this analysis permits those subgroup effects to differ in each state. Thus, the design is the equivalent of a single equation having all the interaction terms discussed in the previous paragraph, plus four dummy variables for Hispanic ethnicity subgroup, and 32 additional state-ethnic subgroup interaction terms.

[5]To discern Hispanic–non-Hispanic differences, a dummy variable for Hispanic ethnicity is added to analyses performed on Hispanic and non-Hispanic workers pooled together, or, depending on assumptions or the outcome of statistical tests, the basic model is estimated separately for Hispanics and non-Hispanics. To discern geographic effects, dummy variables representing the nine states examined here are added to analyses of data from all nine states pooled together, or the model is estimated separately for residents of each of the 9 different states.

Table 2. Covariance Analysis Tests for the Socioeconomic Index

Population and Null Hypothesis	F-Statistic (d.f.)
I. Non-Hispanic Whites	
1. Ho: Intercepts do not vary across states (Pooled data from all 9 states)	3.9499*** (8, 17072)
2. Ho: Coefficients of basic model variables do not differ across States	1.8774*** (40, 17033)
II. Hispanic Whites: Models without Hispanic ethnicity subgroup dummy variables	
1. Ho: Intercepts do not vary across states (Pooled data from all 9 states)	7.6300*** (8, 2257)
2. Ho: Coefficients of basic model variables do not differ across States	1.4486* (40, 2218)
III. Hispanic Whites: Models with Hispanic ethnicity subgroup dummy variables	
1. Ho: Intercepts do not vary across states (Pooled data from all 9 states)	5.8177*** (8, 2253)
2. Ho: Coefficients of basic model variables and ethnicity dummy variables do not differ across States	1.1267 (72, 2182)

*$p < .05$ ***$p < .001$

FINDINGS FOR THE SOCIOECONOMIC INDEX (SEI)

As hypothesized, Panel I of Table 2 shows statistically significant geographic variation in occupational effects of individual characteristics ($p < .001$; for test details, see Johnston 1972, p. 198; R^2 statistics and N's for all analyses are reported in Stolzenberg, 1982). Panel II shows geographic variation in effects of Hispanics' individual characteristics. Panel III shows significant interstate differences in intercepts ($p < .001$), but not coefficients when ethnicity subgroup dummy variables are included.

Row 1 of Table 3 shows that the mean unadjusted SEI of Hispanic white men in the nine states is 28.62, compared to 43.34 for non-Hispanic white males who live in the same states. Row 4 indicates the mean Hispanic SEI that would obtain if the numbers of Hispanic men in each state were made equal to the number of non-Hispanic men there, but Hispanic and non-Hispanic means of SEI were unchanged in each state. Comparing rows 1 and 4, equalization of white Hispanic and non-Hispanic population distributions raises the mean SEI of Hispanics from 28.62 to 29.21 SEI points — an insignificant amount, albeit consistent with the hypothe-

Table 3. Raw and Adjusted Mean SEI Values for Hispanic and Non-Hispanic White Males in 9 States

Measure	Hispanic (1)	Non-Hispanic (2)	Difference (1) - (2)
I. State-specific results for Hispanics weighted by Hispanic N's and state-specific results for non-Hispanics weighted by non-Hispanic N's			
Unadjusted mean SEI	28.62	43.34	-14.72
Adjusted mean SEI			
"Hypothetical immigrant"	11.03	14.39	-3.36
"Hypothetical native"	31.49	33.22	-1.73
II. State-specific results for Hispanics and non-Hispanics weighted by non-Hispanic N's			
Unadjusted mean SEI	29.21	43.34	-14.13
Adjusted mean SEI:			
"Hypothetical immigrant"	11.56	14.39	-2.83
"Hypothetical native"	33.02	33.22	-0.20

sis that Hispanic–non-Hispanic differences are exacerbated by group differences in geographic distribution.

To permit interstate and Hispanic–non-Hispanic differences in the effects of basic model variables on SEI, standardizations in rows 2, 3, 5, and 6 are performed separately for Hispanics and non-Hispanics in each state. Results of state-specific standardizations are weighted by the number of respondents in each state, then averaged. In the top half of Table 3, Hispanic N's are used to weight state-specific results for Hispanics and non-Hispanic N's are used to weight results for non-Hispanics, reflecting Hispanic–non-Hispanic differences in population distribution across states. In the lower half of Table 3, non-Hispanic N's are used to weight state-specific results for both non-Hispanics and Hispanics, to remove the effect of Hispanic–non-Hispanic differences in population distribution across states.

Standardizations are based on two different hypothetical individuals, which I call the "hypothetical native" and the "hypothetical immigrant." The "hypothetical immigrant" has completed eight years of school, has 10 years of potential labor force experience, was not born in the U.S., and speaks only a few words of English (scores two on the fluency scale). The "hypothetical native" has completed 12 years of school, has 10 years of potential labor force experience, was born in the U.S., and speaks English "very well" but was not raised in a household where English was spoken (scores five on the fluency scale).

For the hypothetical immigrant in row 2, equalizing the characteristics of Hispanic and non-Hispanic workers at levels of the hypothetical immigrant greatly reduces the SEI gap between Hispanic and non-Hispanic men, albeit at very low SEI levels. For the hypothetical native in row 3, Hispanic and non-Hispanic SEI levels are much higher, and the difference between them is reduced further.

Results in the lower panel of Table 3 also control for Hispanic–non-Hispanic differences in population distribution among states, but are similar to those in the upper panel. Equalizing the characteristics of Hispanic and non-Hispanic workers at levels of the hypothetical immigrant greatly reduces the SEI gap between Hispanic and non-Hispanic men. Equalizing characteristics at the level of the hypothetical native virtually eliminates the remaining gap.

To test for Hispanic ethnic subgroup effects, four dummy variables representing Mexican Americans, Puerto Ricans, Cuban Americans, and Americans of Central and South American ancestry are added to analyses of Hispanics. The dummy for "other Spanish" ethnicity is excluded to avoid multicollinearity. Because tests reported above do not show significant interstate differences in basic model coefficients for Hispanics, these four dummies (and eight dummies representing the nine different states) are added to analyses of data from all nine states pooled together. Hispanic subgroup dummies are significant at the .005 level ($F_{4,2253} = 4.6542$).

In Table 4, coefficients indicate effects relative to the excluded category, "other Spanish." The Cuban coefficient is largest (about five SEI points), and is the only ethnic subgroup effect that is significant at even a five percent level. These results suggest that, after adjusting for effects of basic model variables and geographic location, Cubans have slightly higher SEI than other American Hispanics.[6]

[6]Results are essentially unchanged by exclusion of dummy variables representing states. The test for significance of the four Hispanic ethnicity dummies is significant at the .001 level ($F_{4,2261} = 8.2371$); the dummy for Cuban ethnicity is 5.23, and it is the only Hispanic ethnicity subgroup dummy which is signifi-

Table 4. Coefficients of Hispanic Ethnicity Subgroup Dummy Variables

Ethnic Subgroup	Coefficient (t-statistic)
Mexican	-2.74 (-1.95)
Puerto Rican	1.35 (0.73)
Cuban	4.83** (2.32)
Central and South American	-2.99 (-1.59)

** $p < .025$, two-tailed

Notes: "Other Spanish" dummy variable are excluded from regression to avoid perfect multicollinearity. These results are from regression of SEI on basic model variables, eight state dummy variables, and four ethnicity dummies; estimated on white Hispanics only.

Table 5 presents effects of basic model variables for Hispanics and non-Hispanics. Results are averages based on regressions fitted separately for Hispanics and non-Hispanics in each state.

Because the basic model permits nonlinear schooling and labor force experience effects, the impacts of those variables are evaluated by partial derivatives at specific values of education and experience (Stolzenberg 1979). School effects are evaluated at the sixth and twelfth grades. At the sixth grade, the effect of an additional year of school completed is very modest: 0.90 SEI points for Hispanics and 1.54 for non-Hispanic whites. However, by the twelfth grade, the impact of an additional year of school becomes substantial: 4.23 SEI points for Hispanics, and 4.60 points for non-Hispanics.

Experience effects in Table 5 are evaluated at 10 years of labor force experience. An additional year of experience produces about one-half an additional SEI point for Hispanic whites, and about three-fourths of a point for non-Hispanic whites, suggesting that Hispanics very slowly fall further behind comparable non-Hispanics as their careers progress.

cant at the .05 level ($t = 2.96$). In similar analyses performed separately in each state, no coefficients for Hispanic ethnic subgroups are significant at the .05 level, and no tests for the significance of all four coefficients reject the null hypothesis at the .05 level.

Table 5. Unstandardized Marginal Effects of Basic Model Variables for Hispanic and Non-Hispanic White Males

Independent Variable	Hispanic	Non-Hispanic
Education (evaluated at 6 yrs)	0.90	1.54
Education (evaluated at 12 yrs)	4.23	4.60
Experience (evaluated at 10 yrs)	0.55	0.73
English fluency	2.57	1.36
Foreign birth	-0.26	-0.42

Note: Cell entries are mean of effects in 9 state-specific analyses for Hispanics and for non-Hispanics.

For Hispanics, the difference between not speaking any English and being a native speaker raised in a home where English was the usual language spoken (a difference of five points on the fluency scale) corresponds to a difference of about 12 SEI points, other things represented by basic model variables equal. For non-Hispanic whites, the difference is about seven SEI points.[7] Thus, the occupational cost of poor English language fluency is great for Hispanics, and considerably greater than for non-Hispanics.

Net of other basic model variables, foreign birth affects occupational SEI of Hispanics and non-Hispanics by less than a single SEI point. Thus, occupational effects of foreign birth appear to be mediated through schooling, English language fluency, or other basic model variables. This result is unexpected and inconsistent with findings of previous analyses of Hispanics' earnings.

WEEKS WORKED AND MEAN EARNINGS

The left panel of Table 6 reports analyses of the pay rates of occupations. Results are similar to those concerning SEI shown in Table 3. In row 1 of column 3, the unadjusted means for Hispanics and non-Hispanics differ by -0.229, indicating, on average, that the occupations of Hispanic white men pay about 80 percent as much as the

[7] Because significance tests indicated interstate differences in basic model coefficients for non-Hispanics, this estimate is obtained by multiplying the average within-state coefficient of SPKENG for non-Hispanics (1.36) by 5.

Table 6. Raw and Adjusted Mean Occupational Earnings and Occupational Stability for Hispanic and Non-Hispanic White Males in 9 States

Mean	Mean Occupational Earnings (ln)			Occupational % Work 50-52 Weeks		
	Non-Hispanic (1)	Hispanic (2)	Non-Difference (3)	Hispanic (4)	Hispanic (5)	Difference (6)
Unadjusted mean	8.918	9.147	-0.229	62.1	70.2	-8.1
Adjusted means:						
"Hypothetical immigrant"	8.604	8.734	-0.130	53.3	56.9	-3.6
"Hypothetical native"	8.939	9.009	-0.070	64.4	67.1	-2.7

Note: State-specific results for Hispanics weighted by Hispanic N's, and state-specific results for non-Hispanics weighted by non-Hispanic N's

occupations of non-Hispanic white men.[8]

Row 2 of column 3 shows that equalizing Hispanic and non-Hispanic white men's characteristics at levels of the "hypothetical immigrant" substantially reduces the gap between earnings levels of Hispanics' and non-Hispanics' occupations. Hispanic occupational earnings levels are 88 percent of non-Hispanic white occupational earnings ($e^{-.130} = 0.88$). Row 3 of column 3 shows that equalizing Hispanic and non-Hispanic white men's characteristics at levels of the hypothetical native bring earnings levels of Hispanic men's occupations to 93 percent of the occupational earnings levels of white non-Hispanics ($e^{-.070} = 0.93$).

The right panel of Table 6 reports analyses of weeks worked. Results in row 1 of column 6 show that the unadjusted mean is 8.1 percentage points lower for Hispanics than for non-Hispanic whites. In row 2 of column 6, equalizing Hispanic and non-Hispanic men's characteristics at levels of the hypothetical immigrant reduces the gap between full-year employment levels of Hispanics' and non-Hispanics' occupations to 3.6 points. Row 3 of column 6 shows that limiting comparisons to men with characteristics of the hypothetical native reduces the Hispanic-non-Hispanic difference in OCC-weeks to 2.7 percent.

Table 7 shows marginal effects of basic model variables on occupational earnings and full year employment levels. The effect of schooling on both dependent variables is higher for non-Hispanics. For example, at the sixth grade level, the effect of an additional year of school for Hispanics is a one percent increase in occupational pay level ($e^{.0112} = 1.01$); for non-Hispanics, the effect is two percent ($e^{.0228} = 1.02$). Effects of English language ability on occupational characteristics are much stronger for Hispanics than for non-Hispanics. The coefficient of .0714 for speaking English indicates that, on average, Hispanics who speak it very well (a score of five on the fluency scale) engage in occupations which average 24 percent more pay than the occupations of Hispanics who speak only a few words of English (a score of two on the scale; $e^{[(5-2).0714]} = 1.24$). For non-Hispanic whites, the effect of a similar difference in English language ability is a nine percent difference in occupational pay levels. Finally, Table 7 indicates that the direct effect of foreign birth on occupational earnings levels is an increase of about three percent for Hispanics and about 0.3 percent for non-Hispanics. The direct effect of foreign birth on occupational weeks worked is negligible — 0.7 percent for Hispanics and -0.5 percent for non-Hispanics.

SUMMARY AND CONCLUSIONS

Results suggest that much of the occupational inequality between Hispanic and non-Hispanic white men is explained by differences in schooling and English language fluency. Findings are most consistent with this conclusion when occupation is measured by SEI, and less so when measured by weeks worked and earnings levels (see Tables 3 and 6). However, closer scrutiny of findings suggests a pattern that might be

[8] Exp (-0.229) = 0.80. By the laws of logarithms, the ratio of two numbers is equal to the exponentiated difference between their logarithms. Thus, the ratio of white Hispanic mean occupational earnings to white non-Hispanic mean occupational earnings is equal to the exponentiated difference between the logarithms of these quantities.

Table 7. Unstandardized Marginal Effects of Basic Model Variables for Hispanic and Non-Hispanic White Males

Independent Variable	Occupational Earnings (ln)		Occupational Weeks Worked	
	Hispanic	Non-Hispanic	Hispanic	Non-Hispanic
Education (evaluated at 6 years)	.0112	.0228	.6394	2.5001
Education (evaluated at 12 years)	.0507	.0594	1.4159	1.7981
Experience (evaluated at 10 years)	.0154	.0162	.5236	.5526
English fluency	.0714	.0291	2.3913	.4832
Foreign birth	.0291	.0026	.6955	-.5261

Note: State-specific results for Hispanics weighted by Hispanic N's and state-specific results for non-Hispanics weighted by non-Hispanic N's.

called *conditional occupational assimilation.*[9] If Hispanic men speak English "very well" and have completed at least 12 years of school, then their occupational achievement is close to that of white non-Hispanic men in the same geographic area with similar English fluency and schooling. However, at lower levels of English language proficiency and schooling, the occupations of Hispanics are inferior to the occupations of linguistically and educationally similar white non-Hispanic men. This pattern is suggested by results based on all three occupational measures, but is most evident in analyses of occupational pay levels: the crude difference is a 26 percent advantage for non-Hispanics, but drops to 14 percent when comparisons are limited to those with poor English and eight years of school, and falls to seven percent for high school graduates who speak English very well.[10]

Results suggest that conditional occupational assimilation is caused by gross inequality in the effect of English language fluency on occupation. For example, for not speaking English very well, Hispanics pay roughly twice the penalty in SEI paid by white non-Hispanics, and the Hispanic disadvantage in earnings and weeks worked is even larger (see Table 7). This greater penalty may result from unmeasured correlates of poor English fluency among white Hispanics but not among other whites. Or it may result from greater employment discrimination against Hispanics than against non-Hispanic whites who do not speak English well. Richer data than the SIE would be required to choose between these explanations.

Conditional occupational assimilation appears to be largely unaffected by nativity and labor force experience. Although Hispanics gain less than non-Hispanics from the passing of each additional year after leaving school, this difference is small. Similarly, the direct occupational effect of foreign birth is very weak. Effects of foreign birth on SEI appears to be mediated through other characteristics of workers, most probably English language fluency and educational attainment. Because earlier analyses have found negative effects of foreign birth on earnings, my results seem to suggest that foreign birth has greater effects on the distribution of earnings among incumbents of the same occupation than upon the distribution of persons among occupations. In any case, nativity and experience do not directly alter conditional occupational assimilation.

Similarly, conditional occupational assimilation does not appear to be altered by the geography of American Hispanics. This is not to say that all places are the same for Hispanics. Rather, strong place effects appear to be unusual, confined to small geographic areas (see Portes and Jensen 1987) or to work indirectly through individual level variables. For example, some schools in some places may have special programs to prevent Hispanics from dropping out, thereby raising the years of schooling

[9] Thanks to William Form for this observation.

[10] These results are based on column three of Table 6. Percentage differences are obtained by exponentiating the non-Hispanic-Hispanic differences in logarithms.

completed by their Hispanic residents and, consequently, their occupational SEI.

My analyses of ethnic subgroup effects found that Cuban origin or ancestry has a moderate positive effect on Hispanic occupational SEI, net of geographic location and basic model variable effects. Interpretation of this finding raises several important issues which are related to the conceptualization of ethnic groups and their effects.

Ethnic groups exist only if they are recognized as such, and their members have distinctive norms, values and/or activities (Yinger 1985; Bean and Tienda 1987 Ch. 1). Thus, *ethnicity effects* include (1) consequences of those distinctive norms, values or activities, (2) consequences of being recognized as members of a particular ethnic group (e.g. discrimination), and, (3) interactions between 1 and 2. *Correlates* of ethnic group membership may affect the employment experiences of an ethnic group, but they would not be direct effects of ethnicity *per se*. For example, selective migration might produce unusual educational or occupational distributions of ethnic groups in the United States, but those effects would not be directly due to ethnicity.

Ideally, analysis of ethnicity effects would use separate variables for each dimension of ethnicity, including adherence to group norms, internalization of group values, participation in group activities, etc. Other variables might measure specific correlates of ethnicity. Lacking data to permit construction of such variables, one could rely on previous research to confirm that population groups of interest are ethnic groups, and then use dummy variables to represent these groups. Coefficients of these dummy variables would indicate the sum of all effects of ethnic group membership, plus the sum of effects of all correlates of ethnicity not explicitly measured by other variables in the analysis. Thus, if one accepts Bean and Tienda's (1987) argument that the SIE Hispanic subgroups are ethnicity groups, then the ethnicity coefficients reported here can be interpreted as evidence that the total direct occupational effect of Cuban ethnicity and its correlates is a moderate increase in occupational SEI above levels expected on the basis of Hispanic ethnicity, geographic location and individual characteristics. I do not find analogous effects for other Hispanic subgroups. If one seeks to estimate Hispanic-non-Hispanic differences in occupational achievement, then this pattern of Hispanic subgroup effects, combined with the fact that Cubans are less than six percent of the American Hispanic population, suggests that little damage is done by ignoring Hispanic ethnic *subgroups*.

However, if one seeks to understand mechanisms by which ethnicity impinges on the workings of the labor market, then my results seem to call for more research on the specific processes which create the "Cuban effect." Such efforts might involve comparisons between Cubans and other Hispanics on specific dimensions of ethnicity, including adherence to specific norms, internalization of specific values, participation in specific activities. Focusing on correlates of ethnicity, one might ask if the "Cuban effect" is a lagged effect of the unique circumstances under which most Cubans entered the U.S.(see Bean and Tienda 1987) or, as a critic of this paper argued, simply the life-long consequence of the higher average social class origins of foreign-born Cubans.[11] Other fundamental questions concern identification of Cubans as a separate ethnic group: Do non-Hispanics distinguish between Cuban and non-Cuban Hispanics? If so, do they favor Cubans?

Whatever the outcome of further explorations into ethnicity-related mechanisms that produce occupational differences between Cubans and other Hispanics, it seems appropriate to stress again that these differences produce only modest departure from the conditional occupational assimilation of American Hispanic men: a pattern of greater occupational inequality between Hispanics and non-Hispanics of low educational attainment and poor English fluency, and smaller occupational differences between Hispanics and non-Hispanics who have at least 12 years of schooling and very good English language skills.

Ross M. Stolzenberg, Vice President-Research of the Graduate Management Admission Council, continues to study causes and consequences of employment, job quality, and schooling. Current work includes studies of the relationship between family formation and higher education, employment of Hispanics, and factors affecting enrollment in post-graduate degree programs. Recent and ongoing methodological studies focus on empirical Bayes methods and corrections for sample selection bias.

[11] Recall that data analyzed here were collected in 1976, when most American Cubans were middle class refugees from the Cuban revolution.

REFERENCES

Abowd, John and Mark Killingsworth. 1985. "Employment, Wages and Earnings of Hispanics in the Federal and Nonfederal Sectors: Methodological Issues and their Empirical Consequences." Pp. 77-126 in *Hispanics in the U.S. Economy*, edited by George J. Borjas and Marta Tienda. Orlando: Academic Press.

Bean, Frank D. and Marta Tienda. 1987. *The Hispanic Population of the United States*. New York: Russell Sage Foundation.

Beck, Elwood, Patrick Horan, and Charles M. Tolbert II. 1980. "Industrial Segmentation and Labor Market Discrimination." *Social Problems* 2:113-30.

Borjas, George J., and Marta Tienda. 1985. "Introduction." Pp. 1-24 in *Hispanics in the U.S. Economy*, edited by G. Borjas and M. Tienda. Orlando: Academic Press.

Borjas, George J., and Marta Tienda. 1987. "The Economic Consequences of Immigration." *Science* 235: 645-651.

Carliner, Geoffrey. 1981. "Wage Differences by Language Group and the Market for Language Skills in Canada." *Journal of Human Resources* 16: 384-399.

Chiswick, Barry. 1978. "The Effect of Americanization on the Earnings of Foreign-Born Men." *Journal of Political Economy* 86: 897-921.

_____. 1979. "The Economic Progress of Immigrants: Some Apparently Universal Patterns." Pp. 357-99 in *Contemporary Economic Problems*, 1979, edited by William Fellner. Washington, D.C.: American Enterprise Institute.

Fossett, Mark and Gray Swicegood. 1982. "Rediscovering City Differences in Racial Occupational Inequality." *American Sociological Review* 47: 681-9.

Frisbie, Parker, and Lisa Neidert. 1977. "Inequality and the Relative Size of Minority Populations: A Comparative Analysis." *American Journal of Sociology* 82: 1007-1030.

Hirschman, Charles and Morrison G. Wong. 1984. "Socioeconomic Gains of Asian Americans, Blacks, and Hispanics: 1960-1976." *American Journal of Sociology* 90: 584-607.

Hodson, Randy and Robert L. Kaufman. 1982. "Economic Dualism: A Critical Review." *American Sociological Review* 47:727-39.

Jaffe, A.J., Ruth Cullen and Thomas Boswell. 1980. *The Changing Demography of Spanish Americans*. New York: Academic Press.

Johnston, J. 1972. *Econometric Methods*. Second edition. New York: McGraw-Hill.

Kalleberg, Arne and Ivar Berg. 1987. *Work and Industry*. New York: Plenum.

Massey, Douglas. 1981. "Dimensions of the New Immigration to the United States and the Prospects for Assimilation." *Annual Review of Sociology* 7: 57-85.

McLaughlin, Steven D. 1983. "English Language Proficiency and the Earnings of Mexican-American Men." Paper presented at the meetings of the Population Association of America, Pittsburgh.

McManus, Walter, William Gould, and Finis Welch. 1983. "Earnings of Hispanic Men: The Role of English Language Proficiency." *Journal of Labor Economics* 1: 101-130.

Mueller, C.W. 1975. "City Effects on Socioeconomic Achievements: the Case of Large Cities." *American Sociological Review* 39: 652-57.

National Commission on Employment Policy. 1982. *Improving the Labor Market Position of Hispanic-Americans*. Washington, D.C.: U.S. Government Printing Office.

Neiderdt, Lisa and Reynolds Farley. 1985. "Assimilation in the United States: An Analysis of Ethnic and Generation Differences in Status and Achievement." *American Sociological Review* 50: 840-50.

Newman, Morris. 1978. "A Profile of Hispanics in the U.S. Work Force." *Monthly Labor Review* 101: 3-14.

Portes, Alejandro, and Robert Bach. 1980. "Immigrant Earnings: Cuban and Mexican Immigrants in the United States." *International Migration Review* 14: 315-341.

Portes, Alejandro and Cynthia Truelove. 1987. "Making Sense of Diversity: Recent Research on Hispanic Minorities in the United States." *Annual Review of Sociology* 13: 359-85.

Portes, Alejandro and L. Jensen. 1987. "Comment." *American Sociological Review* 52: 768-770.

Reimers, Cordelia W. 1985. "A Comparative Analysis of the Wages of Hispanics, Blacks, and Non-Hispanic Whites." Pp. 27-75 in *Hispanics in the U.S. Economy*, edited by George J. Borjas and Marta Tienda. Orlando: Academic Press.

Russell, Cheryl. 1983. "The News about Hispanics." *American Demographics* 5: 14-25.

Sanders, J. and V. Nee. 1987. "Limits of Ethnic Solidarity in the Enclave Economy." *American Sociological Review* 52: 745-767.

Stolzenberg, Ross M. 1979. "The Measurement and Decomposition of Causal Effects in Nonlinear and Nonadditive Models." In *Sociological Methodology 1979*, edited by K. Schuessler. San Francisco: Jossey-Bass.

Stolzenberg, Ross M. and Ronald D'Amico. 1977. "City Differences and Nondifferences in the Effect of Race and Sex on Occupational Distribution." *American Sociological Review* 42: 937-50.

Stolzenberg, Ross M. 1982. *Occupational Differences between Hispanics and NonHispanics*. Santa Monica, CA: RAND Corporation.

Tainer, Evelina. 1988. "English Language Proficiency and the Determination of Earnings Among Foreign Born Men." *Journal of Human Resources* 23: 108-122.

Tienda, Marta. 1983a. "Nationality and Income

Attainment Among Native and Immigrant Hispanic Men in the United States." *Sociological Quarterly* 24: 253-272.

_____. 1983b. "Market Characteristics and Hispanic Earnings: A Comparison of Natives and Immigrants." Social Problems 31:59-72.

U.S. Bureau of the Census. 1978. "Consumer Income: Household Money Income in 1975, by Housing Tenure and Residence, for the United States, Regions, Divisions, and States, (Spring, 1976 Survey of Income and Education)." Series P-60, No. 108. Washington, D.C.: U.S. Government Printing Office.

_____. 1982. Census of Population: 1980, *Supplemental Report*, PC80-S1-7, "Persons of Spanish Origin by State: 1980." Washington, D.C.: U.S. Government Printing Office.

_____. 1984. *County and City Data Book, 1983 Files On Tape*. Washington, D.C: U.S. Government Printing Office.

Yinger, Milton. 1985. "Ethnicity." *Annual Review of Sociology* 11: 151-80.

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